

The Impact of Induced Emotion on Language

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April 17, 2015

Acknowledgements

There are a many individuals without whom this experience would not have been possible. First, I would like to thank my supervisor and mentor Dr. Whissell for her indispensable guidance and support throughout this process. I wouldn't have been able to complete this endeavor without her wisdom and expertise. I would also like to thank the course professors, Dr. Dickinson and Dr. Urajnik, for always being readily available and willing to guide us through this journey. Their diligence and instruction has been invaluable. Finally, I would like to thank my friends, family, and volunteers for helping me through this project every step of the way. I have gained so much from this experience and am very thankful that I have many people to share it with.

Abstract

Through the investigation of the relationship between linguistics and cognition, it has been discovered that language differences can be found within individuals based on their current affective state. The current study examined whether the three dimensions of language (pleasantness, activation, and imagery) are evident in the language of participants after affective states have been manipulated. 60 Laurentian students were assigned to one of the three group conditions – positive exposure, negative exposure, or control. Participants were also divided by sex between the three groups. Participants were then asked to write a passage describing a personal event. Passages were examined using the Dictionary of Affect in Language (DAL) to determine the emotionality of the passages. Results were analyzed by conducting a 2x3 factorial MANOVA between subjects; the results failed to support the main hypothesis that the dimensions of language are impacted by emotion. However, results did indicate that females used language with more imagery and detail. Additionally, results indicated that event recall negativity was affected by emotion. Limitations, future directions, and implications are discussed.

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The Impact of Induced Emotion on Language

The purpose of the current study was to examine personal event descriptions in an attempt to discover how emotion, when induced by a film clip, shapes linguistic expression. The description passages were analyzed based on the specific dimensions of emotionality in language according to the revised Dictionary of Affect in Language (Whissell, 2009). Literature regarding the existing knowledge of emotion's impact on language will be examined to frame the current study and the hypotheses regarding emotionality in language.

Language is the focus of many psychological studies due to its distinction among humans. Despite the breadth of research surrounding language, there has been little discovery regarding the direct cognitive effects of emotion on an individual's language (Beukeboom & Semin, 2006). The interaction between emotion and linguistic expression is vitally important due to the associated cognitive implications; language acts as a channel between cognition and daily social interactions. Due to this influence, it is beneficial to understand the impact that cognition may impose on language as it consequently affects everyday interpersonal skills (Beukeboom & Semin, 2006). Emotion has been said to flavour language, rather than dominate it (Whissell, 2000). This observation sets the stage for many research possibilities regarding the emotional state of an individual and their subsequent linguistic expression.

Prior studies have focused on the interplay of language and emotion in terms of processing style. In general, it has been found that a positive affective state produces an abstract processing style, while a negative affective state produces a style that is more concrete. Abstraction results in a heuristic and global processing style that relies heavily on general knowledge. A concrete style encompasses a systematic processing of information with more attention to detail (Schwarz & Clore, 1983; Semin & Fiedler, 1988; Bless, Bohner, Schwarz, &

Strack, 1990; Bless, 2000; Beukeboom & Semin, 2006). While these studies cover the overall style of language based on the affective state of the individual, the dimensions of emotionality in language are not included in the analyses. These dimensions will be discussed in detail later on.

Abstract and Concrete Style

Prior studies regarding abstract and concrete processing styles operate on the assumption that the affective state of an individual is indicative of their current situation. Whissell (2009) defines abstract language by words that cannot easily be envisioned; examples of abstract words include faith, suppose, and freedom. Concrete language, on the other hand, is defined by words that one can easily create a mental picture for; examples of concrete words include boat, smile, and snow (Whissell, 2009). In a study by Beukeboom and Semin (2006), abstract language is described by using more adjectives. Concrete language is described as possessing more verbs and few adjectives (Beukeboom & Semin, 2006). It is then assumed that the linguistic processing style of either abstract or concrete will cater to the specific demands of the situation that the individual is in, whether it is positive or negative. A positive mood is associated with safety; the safety of the situation allows the speaker to use an abstract processing style. However, a negative mood is associated with insecurity or a problematic situation. Problematic situations require the speaker to use a concrete processing style. This concrete processing style allows more detail with an elaborate and systematic description of an event. This detail-oriented speech is beneficial when describing the specific elements of a negative situation such as crime or accidents. A positive situation, however, doesn't require the same amount of detail in the description; it is not as essential that the details of the event are brought to the forefront. A positive situation can be explained with a simple abstract description such as, "My day at the amusement park was wonderful"; there is no need for additional information (Beukeboom & Semin, 2006).

Mood-and-general-knowledge assumption.

Originating from the affect-as-information hypothesis by Schwarz and Clore (1983, 1988, 1996), the mood-and-general-knowledge assumption states that a positive mood is characterized by a more heuristic and less systematic processing style (Bless, 2000). This positive affective state induces generalizations and results in more creativity and flexibility. This heuristic style involves applying general assumptions and pre-existing knowledge structures to specific incidences. However, a negative mood induces a more careful, effortful, and analytical processing style with a focus on specific details. An individual in a negative affective state is less likely to use heuristic strategies, and are therefore more likely to estimate more accurately (Bless, 2000). Both of these styles derive from the situation they are engaged in. General knowledge structures allow an individual to disregard information that isn't necessary, thereby reducing the complexity and unnecessary details of an information overload. As discussed earlier, attention to detail is more necessary in a problematic situation, while generalizations are more suitable for a benign situation that would generally produce a positive mood. Elaborate processing is necessary during a negative situation in order to recall as much information as possible if necessary (to report to police, etc.); a positive situation is able to rely on judgments based on general knowledge because an imminent danger is not associated with a positive event (Bless, 2000).

The mood-and-general-knowledge theory is solidified by the findings of Bless, Bohner, Schwarz and Strack (1990). Their research reinforces that a positive abstract expression uses cognitive shortcuts and general knowledge, while a negative concrete expression uses contextual and conclusive details. Those in a negative mood are more likely to include the concrete information that was initially inputted from the situation they are describing; this results in language that is more descriptive. Those in a positive mood, however, tend to include their own

interpretations and elaborate with general findings; this results in more general categorization and abstract language structures. Examples of these styles may be displayed in the language of both an individual in a positive mood and an individual in a negative mood when describing an event they have witnessed. The individual in the negative mood may say, “The man lay down for a nap on the couch”; the individual in a positive mood, on the other hand, may describe the situation by saying “The man was tired”. Here, the negative style describes the details of the specific event, while the positive style makes sweeping generalizations and uses prior knowledge in the description.

Interpersonal parts of speech.

Semin and Fiedler (1991) claim that verbs are used to describe psychological states or actions, while adjectives are used to describe properties of traits and dispositions (introversion, outgoing, caring, etc.). The Linguistic Category Model (Semin & Fiedler, 1988; 1991; 1992) was created to divide parts of speech into four individual groups of interpersonal terms. The groups begin with the most concrete and develop into the most abstract. The first and most concrete interpersonal term is a descriptive action verb (DAVs) (Semin & Fielder, 1991). DAVs provide a description for one observable event that has a clear beginning and end. DAVs must be accompanied by context in order to understand the meaning of the word. In other words, DAVs cannot stand alone while still providing a definitive meaning. Examples of DAVs include meet, kiss, kick, and call (Semin & Fiedler, 1991). An example of a DAV used in a sentence is “John pushes Jane”. This could be interpreted as John pushes Jane to save her from oncoming traffic or John pushed Jane in an aggressive manner. Without context, the meaning cannot be distinguished with complete confidence. The next level of speech is interpretive state verbs (IAVs). IAVs are similar to action verbs in the sense that they both have a clear beginning and

end, and they refer to a specific object or event. However, they can be used to define varied behaviour or an action and also have a distinct negative or positive association. Examples of IAVs include help, imitate, and cheat (Semin & Fiedler, 1991). While one can help in many ways (financially, educationally, etc.), help will generally always have a positive association. The next part of speech, becoming more abstract, is a state verb (SV). SVs describe an emotional state (or changes to an emotional state) that are not observable or specific to an event. Instead, they describe the state evoked due to the object or event. They are all either affective or cognitive states that one can experience. They do not have a clear beginning and end like the other verbs do. They also can be understood without context or further explanation. Examples of SVs include admire, hate, like, abhor (Semin & Fiedler, 1991). The final and most abstract interpersonal part of speech is the adjective. Adjectives refer to qualities of an individual that generalize across events. They make no reference to specific events or objects and are highly interpretable and variable based on the individual. Examples of adjectives include reliable, impulsive, honest and helpful (Semin & Fiedler, 1991). Consistent with other literature, these findings concluded that individuals in a positive affective state use more adjectives to generalize across events, while those in a negative affective state use more verbs to provide more detail.

A study by Beukeboom and Semin (2006) supplemented research regarding the abstract or concrete tendencies of specific affective states. Participant's moods were manipulated to either a positive or negative affective state prior to writing a description of a personal event. Their findings were consistent with the claim of prior research that a positive mood results in more adjectives, while a negative mood results in more verbs. The researchers also looked into whether a positive or negative mood would result in the retrieval of a particularly positive or negative event, respectively. It was concluded that the current mood did influence the parts of

speech and predicates used regardless of the type of event the individual was describing. In other words, a person in a negative mood will describe the same specific event differently than they would if they were in a positive mood (Beukeboom & Semin, 2006).

Dictionary of Affect in Language

Dr. Whissell created the Dictionary of Affect in Language (DAL) in 1989 to quantify connotations of emotionality in words. It has since been revised in 2009 in order to improve its ecological validity with natural language. This revision allowed the DAL to match more words from a general sample of natural language. Prior to the revision, the DAL contained words that would be considered “emotionally loaded”. While these words were relevant to the emotionality of language, they did not accurately represent an average vocabulary sample, deeming the program less reliable (Whissell, 2009). The revised DAL now consists of 8,742 words with a 90% matching rate with natural language. Based on the lexical-emotional research of Osgood (1969), Russell (1978) and Plutchik (1980), a score from 1-3 is provided for each word in the dictionary based on the three dimensions of emotion in language: pleasantness, activation, and imagery. Pleasantness is scored and described by happy satisfaction and enjoyment. Unpleasantness is described by discomfort or revulsion. Activation is described in terms of arousal. Associations with activation can be placed on a continuum of behaviour with its low end in rest and passivity and high end in strong emotional reaction (Schlosberg, 1954; Russell, 1978; Whissell, 2009). Pleasantness and activation are used as emotional measures for language because they are considered the most important and relevant dimensions of language (Russell, 1978). The level of imagery indicates the ease in which one can create a mental picture of the word; the higher the level of imagery a word has, the easier it is to picture. Although imagery is not an emotional rating, it is a key dimension of language because it is an important cognitive

processing rating for attention and detail – two elements that are very relevant to language (Paivio, 1979). Examples of the dimensions are as follows: the word “stream” has a higher score for imagery than the word “supposed”; “afternoon” is considered much more pleasant than “appendix”; “hits” is much more active than “companies” (Whissell, 2009). The DAL includes not only content words (nouns, verbs, adjectives, etc.), but also function words (prepositions, conjunctions, pronouns, etc.). Function words are more abstract than content words; however, they were found to be emotionally distinct despite their abstraction. The DAL provides scores for pleasantness, activation, and imagery for each individual word inputted into the program; it can also score the emotionality of a text as a whole using the three dimensions (Whissell, 2009). The DAL can be used to compare within a subject’s written or spoken language, or it can compare between subjects.

The DAL was also used in combination with a number of experiments to create profiles for phonemes to gauge emotionality. Phonemes are the basic sound units of a language (Whissell, 2000). This process of “phonoemotional profiling” created profiles for specific phonemes in the English language that have a distinct emotional character. The phonemes were grouped along eight areas of emotional space: pleasantness, cheeriness, activation, nastiness, unpleasantness, sadness, passivity, and softness. Words that were considered more emotionally pleasant generally had more pleasant phonemes within the word. For example, the phoneme /l/ is more likely to appear in words that are considered more passive and pleasant, while /g/ is more likely to occur in active and unpleasant words. Passages that are considered to have a pleasant nature as a whole are more likely to have more occurrences of /l/. This phonosymbolism (the ability of a phoneme to express emotional meaning) is considered innate (Whissell, 1999). As stated earlier, emotion only flavours language. The emotionality of a word is not necessarily

fully determined by the phonemes it contains. It was concluded by Whissell (2000) that emotionality could only be expressed through existing phonetic selections that are appropriate for the scenario. In other words, this phonetic emotional flavour is only apparent in nonsense words (used in the studies from Whissell's research in 2000) because the participants are not limited by English definitions. If an event is described using the English language, it is believed that the emotional flavour of the words according to the phonoemotional profiles will not necessarily correspond with the emotional flavour of the text as a whole due to vocabulary constraints (Whissell, 2000). However, the DAL has been used to examine works and passages such as novels and plays that have already been written, rather than studying passages that were written with the sole intention of analyzing the emotionality of the language. For example, the DAL has been used to analyze the overall emotional flavour of famous texts such as Shakespeare's Hamlet (Whissell, 2000) and many other works of popular fiction (Whissell, 1998a; 1999b). In one experiment, the dialogue of Shakespeare's Hamlet and Ophelia were compared. Hamlet was found to use significantly more pleasant and soft language while Ophelia was found to use more nasty and active language. This language matched their individual affective state, as Ophelia was depressed and suicidal. Her despair is evident in her language.

The current study was interested in applying the DAL to passages that are written solely for the purpose of understanding the emotional implications of language in the description of a personal event after the participant's mood has been manipulated. As stated earlier, the DAL has been used to analyze the emotionality of works that have already been written. As a result, the current study was interested in whether the dimensions of language are evident in language based on the emotional state of the writer, rather than the overall emotional feeling of the text itself. The current study was the first to utilize the DAL to measure the dimensions of language in a

passage that was written after the mood of the participant has been manipulated. The DAL may be able to provide a new avenue of research and understanding to the interface of emotion and linguistics.

Mood Manipulation

Mood induction procedures are used in many experiments in order to create the desired and necessary study conditions. Common methods that have been used in the past include: failure and success tasks, examination situations, interaction with a human confederate, music, and videos (Kucera & Havinger, 2012). The Beukeboom and Semin (2006) study that was discussed earlier induced their participants into either a positive or negative mood using film clips in order to examine language differences. They tested multiple videos prior to the study to determine which clips had the most significant mood manipulation effect. Since the current study mimicked much of the method of the Beukeboom and Semin (2006) study, the mood induction technique was kept consistent for the current study. The same film clips used in the Beukeboom and Semin (2006) study were used in the current study. These film clips will be discussed in detail in the methods and procedures section.

Sex Differences in Language

Former research has focused heavily on the differences between male and female linguistic expression patterns. In a study by Whissell (1996), females were found to be more anxious, tense, positive, and pleasant in their language; males were found to be more sensation seeking, angry, and active. Regarding the dimensions of emotionality according to the DAL, males were found to have higher scores in active and unpleasant areas of emotional space, while females were found to have higher scores in passive and pleasant areas. This is displayed in the

general intrinsic nature of males to display more disgust/distrust, anger, and boldness. Females display more tendencies of gregariousness, trust, surprise, and sadness (Whissell, 1996).

Many studies have examined the apparent language differences of males and females when considering abstract and concrete speech styles. Females have been found to use more intensive adverbs such as “really hard” with more indirect, elaborative and affective speech. Males, on the other hand, have the tendency to use more judgmental adjectives such as “wrong” or “main” with more direct and succinct speech (Mulac, Bradac, & Gibbons, 2006). In another study, females were found to use more psychological processes such as “nervous”, “remember”, or “mad”. Females also use more social processes in reference to people they know, more verbs, and more negations (can’t, not, etc.). In the same study, males were found to speak virtually free of constraints and track their thoughts as they occurred, using more articles (a, the, etc.) and adjectives, and make more reference to current events (Newman, Groom, Handelsman, & Pennebaker, 2008). In another study, it was concluded that males tend to use more directive and dynamic speech with the example of, “Let’s go get food”. However, females make more references to their own emotion and tend to use dyadic connections in speech such as, “Does anybody want to go get some food?” (Palomares, 2004). These findings all cumulate to supplement the studies discussed earlier regarding processing style, adjectives and verbs, and language differences. The current study was interested in whether these language differences among sexes would be evident in an event description passage after affective states have been manipulated. However, the findings discussed above regarding female and male language tendencies are contradictory to other findings regarding abstract and concrete language. Females were found by Whissell (1996) to be more pleasant in their language, which is indicative of abstraction; however, females were also found by Newman et al. (2008) to use more verbs,

which is indicative of concrete language. Similarly, males were found to use more adjectives (Newman et al., 2008), which is indicative of abstraction; however, they are also found to be more unpleasant in their language, which is indicative of concrete language. Therefore, there seem to be no conclusive results as to whether males and females are more inherently concrete or abstract in their language. Despite these contradictory findings in relation to abstract and concrete language, the interaction of these sex differences and the affective state manipulation on the dimensions of language will be considered and hypothesized in the current study.

Current Study

The current study examined the impact of emotion on language. More specifically, the study attempted to understand the emotionality of language in a personal event description according to the DAL in terms of the three dimensions of language: pleasantness, activation, and imagery. Previous literature emphasizes the presence of an abstract or concrete language style when the individual is in a positive or negative mood, respectively. However, the dimensions of language of the DAL have yet to be examined in relation to the current personal affective state of an individual. Therefore, the current study aimed to incorporate the DAL as a way to measure language in a different way than past research. Using the DAL to score the emotionality of language ensured the quantification and validity of the results and provided an objective measure to this research. The DAL was used in an attempt to expand upon prior research by verifying the phenomenon of abstraction and concreteness that has been identified in past studies; however, it also provided a new realm of research in the form of the dimensions of language, a personal event description, and induced emotion that has not yet been explored. The DAL replaced the need for judges to individually quantify the language passages as was the case in the Beukeboom and Semin (2006) study and allowed the use of a computer. The Beukeboom and Semin (2006)

study quantified their results by counting the number of adjectives and verbs to determine the abstract or concrete nature of the participant's passages. The DAL, however, provided the researcher with an objective and quantifiable measure to analyze large amounts of data from the event description passages with the use of a reliable and valid program.

The current study was the first to examine emotionality in the language of a personal event description while taking the affective state of the participant into account. Many of the former studies discussed earlier scored their results by considering the number of adjectives and verbs used. However, the current study used the DAL as a computer program to ensure a large-scale quantification of data with a comprehensive analysis. The use of the program also allowed the words to be scored not only individually but the text to be analyzed as a whole, providing scores for the three dimensions that could be compared and contrasted between subjects.

Hypotheses

The main goal of the current study was to examine the different roles a positive or negative emotional state may have on language. Participants were induced into the desired emotional state using a positive or negative film clip. Based on the literature discussed earlier, it was hypothesized that participants induced into a positive emotional state by the positive exposure group would exhibit higher scores for the two dimensions of pleasantness and activation and a lower score for imagery in comparison to the control group when writing a description of a personal event they have experienced. These higher levels in pleasantness and activation are indicative of abstraction, which is associated with a positive affective state according to the literature discussed earlier. Those in the positive exposure group are also expected to have lower scores of imagery because words that are more abstract are not as easy to picture (supposed, faith, etc.) (Whissell, 1996) and are therefore not considered words with high

imagery. Since abstraction is associated with a positive mood (Beukeboom & Semin, 2006), a lower score for imagery was expected. Similarly, it was hypothesized that participants in the negative exposure group would exhibit lower scores in pleasantness and activation and higher scores of imagery in comparison to the control group when describing a personal event. These lower scores in the two dimensions are indicative of concrete language. Imagery is expected to be higher for the opposite reason of the positive group – words with high imagery scores are associated with concrete language which is further associated with a negative mood and processing style (Beukeboom & Semin, 2006).

It was also hypothesized that participants in the positive exposure group would have shorter passages, while the negative exposure group was hypothesized to have longer passages in comparison to the control group. This hypothesis is a result of the findings discussed earlier. Those in a positive mood tend to make sweeping generalizations (Beukeboom & Semin, 2006) and use cognitive shortcuts (Bless et al., 1990); therefore, it was hypothesized that this would result in shorter and more succinct passages. Those in a negative mood, however, tend to use more elaborative and systematic speech when describing an event (Beukeboom & Semin, 2006) while also using more descriptive language (Bless et al., 1990); therefore, it was hypothesized that this would result in longer passages.

It was hypothesized that females would exhibit generally longer passages with higher levels of pleasantness in comparison to the male participants. This is due to the findings discussed earlier that stated females use more indirect and elaborative speech (Mulac et al., 2006) resulting in longer passages. Also, research by Whissell (1996) stated that females are generally more emotionally pleasant in their language. Males, however, were hypothesized to write shorter passages with higher levels of activation. This was hypothesized due to the findings

discussed earlier that stated males use more direct, dynamic, and succinct speech (Mulac et al., 2006) resulting in shorter passages for males. Whissell (1996) also found that males were more emotionally active in their language.

It was hypothesized further that males would not be as strongly affected by the negative exposure as the females. The males were expected to respond to the negative exposure with less sensitivity than females, exhibiting scores that are more similar between males than females for all the exposure groups. Females were expected to be affected more greatly by the negative exposure and therefore show lower levels of pleasantness and activation when in the negative exposure group in comparison to the males in the negative exposure group. In other words, females were expected to be affected by the exposure more strongly than males in general; this was expected to result in higher levels of abstract language when in the positive exposure group and higher levels of concrete language while in the negative exposure group when compared to males. These hypotheses are due to findings discussed earlier that stated males have a disposition that is more emotionally active while females have a disposition that is more emotionally passive (Whissell, 1996). This active nature is hypothesized to defend males more strongly than females from severe mood manipulation. The passive nature of females is hypothesized to leave them more vulnerable to mood manipulation. Females also have the tendency to be more sad than males (Whissell, 1996) which leads to further vulnerability during the negative exposure film clip. As a result, it was expected to see relatively stable scores for males for the dimensions of language after the mood manipulation for all exposure groups in comparison to females. These hypotheses based on sex differences are a result of the findings from the studies discussed earlier (Palomares, 2004; Mulac et al., 2006; Newman et al., 2008) and largely based on the findings of Whissell (1996) regarding sex differences and emotionality.

Analysis

The passages were analyzed using the DAL to quantify the associations of emotional words from each participant. Independent variables in the current study are the levels of exposure: positive exposure, negative exposure, and the no exposure group/control group. These exposure levels are intended to manipulate the affective state of the participant with the use of film clips. Sex differences are also analyzed as an independent variable. One of the dependent variables is the scores for the three dimensions of emotion described earlier: pleasantness, activation, and imagery. These three dimensions are used to analyze the emotionality of language due to the findings by Whissell (1989; 2009), Osgood (1969), and Schlosberg (1954). Males are expected to speak more succinctly with shorter passages than females (Mulac et al., 2006); therefore word count will also be analyzed as a dependent variable. The results from the affective state manipulation check and event retrieval likert scale questionnaires will also be analyzed as dependent variables. From the affective state manipulation check questionnaire the dependent variables are the results reporting how the participant feels after mood manipulation: good/bad, happy/sad, positive/negative. The dependent variables from the event retrieval questionnaire include: event emotionality, event detail, and event negativity. The TMD score from the POMS was also included as a final dependent variable to determine if there were differences that may be present due to a participant's mood prior to any mood manipulation. Due to these variables, a between subjects 2x3 factorial multivariate analysis of variance (MANOVA) was conducted to analyze the results using the two levels of sex (male and female) and the three levels of exposure (positive exposure, negative exposure, and control). To reiterate, the 11 dependent variables include: pleasantness score, activation score, imagery score, word count, good/bad score,

happy/sad score, positive/negative score, event emotionality, event negativity, event detail, and TMD score.

Method

Participants

Participants included in the current study were Laurentian students at least 18 years of age with English as a first language. English is required as a first language to account for any confounds due to the linguistic nature of the study. Laurentian students were recruited from psychology classes with the permission of the professor. In exchange for their participation, participants were offered a credit for their psychology courses in accordance with the professor's syllabus. The study included 43 females and 17 males, for a sample size of 60 individuals overall. See Appendix A for the recruitment script.

Procedure

All participants were sequentially assigned to one of three groups: positive exposure group, negative exposure group, and no exposure/control group.

POMS

All participants completed a Profile of Mood States (POMS) questionnaire. The POMS consists of 65 adjectives that indicate how the participant has felt for the past week. Examples of adjectives they encountered were "friendly", "worn out", and "tense". To each of the adjectives, they were to respond on a five-point likert scale with "not at all", "a little", "moderately", "quite a lot", or "extremely". The POMS determines the individual's Total Mood Disturbance (TMD) score. The TMD is a global distress score based on the six subscales of the questionnaire: Tension-Anxiety, Anger-Hostility, Vigour-Activity, Depression-Dejection, Confusion-Bewilderment, and Fatigue-Inertia. The TMD is calculated by adding all the scores for the

independent subscales, excluding the vigour score. The vigour score is then subtracted from the sum of the other subscales, yielding an overall TMD score. The score has a possible minimum of -32 (due to the subtraction of the vigour score) and a maximum of 200, which indicates the highest disturbance in mood. This measure was completed to account for any existing affective state that might have been considered an outlier prior to the commencement of the study. See Appendix C for an example of the POMS.

Affective State Manipulation

The participants assigned to the positive and negative exposure groups were then subjected to a film clip that was seven minutes long. The positive exposure group watched the *Bear Necessities* scene from “The Jungle Book”. The negative exposure group watched the scene in “Sophie’s Choice” when the main character is forced to choose which of her children must be sent to a concentration camp in Auschwitz. These film clips were chosen because they were tested during the Beukeboom and Semin (2006) study and provided the most significant affective state manipulation for their participants.

The control group continued on with the procedure with no pause and no film clip between the POMS questionnaire and the next step of the procedure. This continuation was to account for any emotional manipulation that might have occurred if the participants were exposed to a neutral video or if they were to wait seven minutes between steps.

Affective state manipulation check questionnaire.

Participants from all groups continued on to complete a questionnaire to determine whether the participant’s mood had in fact been manipulated. This questionnaire consisted of the question “How do you feel at this moment” with three nine-point bipolar scales ranging from good to bad, happy to sad, and positive to negative. This manipulation check was completed due

to its proven validity after being tested in the Beukeboom and Semin (2006) study. Their manipulation check formed internally consistent scales among participants. See Appendix D for an example of this questionnaire.

Personal Event Description Task

All participants were given the instruction to “Describe an event you have experienced that was important to you and in which you and one or more people were involved”. The passage had no restrictions in terms of length, time, or content.

Event retrieval questionnaire.

Following the event description, participants were given a questionnaire regarding the event they had just described. This questionnaire was to determine if there was a systematic difference between the type of event they retrieved due to the affective state they were manipulated into. This mirrors the Beukeboom and Semin (2006) study where they found no significant differences in terms of event retrieval. The questions were answered using a seven-point likert scale to further describe features from the event they had just described. Some questions were omitted from the questionnaire used in the Beukeboom and Semin (2006) study to avoid redundancy. The questions included in the current study consisted of: “How positive or negative was this event for you?”, “To what extent was this an emotional situation?”, and “How well do you remember the specific details of the situation?”. See Appendix E for an example of this questionnaire.

Final Details

Participants were thanked and debriefed about the study. Participants assigned to the negative exposure group were given the opportunity to watch the positive film clip after the study had ended if they chose to do so. Participants were provided counselling contact

information if they felt negatively affected by their participation and wished to speak to someone. See Appendix B for the consent form and Appendix F for the debriefing form given to participants at the end of the experiment.

Results

Analyses were conducted using SPSS 19 for Macintosh. All 60 participants were included in the final data set. The following are all the analyses conducted to test the hypotheses discussed earlier.

Descriptive Statistics

Table 1 displays the standard deviation, mean, minimum and maximum values for all dependent variables included in the analyses.

Table 1.
Descriptive Statistics for All Variables

Variable	Minimum	Maximum	Mean	SD
TMD	-28	122	29.47	33.35
Good/Bad	1	9	3.90	2.75
Happy/Sad	1	9	4.07	2.96
Pos/Neg	1	9	4.00	2.93
Event Neg	1	9	2.55	2.55
Event Emo	2	9	7.30	1.75
Event Detail	3	9	7.90	1.29
Pleasant	1.77	2.07	1.93	.061
Active	1.62	1.81	1.71	.038
Imagery	1.41	1.84	1.56	.079
Word Count	19	445	112.47	79.24

Note. N = 60. SD = Standard Deviation. TMD = Total Mood Disturbance. Good/Bad, Happy/Sad, Positive/Negative = How was the participant was feeling after mood manipulation. Event Neg = How negatively did the participant perceive the event they described. Event Emo = How emotional did the participant perceive the event they described. Event detail = How well did the participant remember the event they described.

Profile of Mood States (POMS)

A POMS questionnaire was completed in order to determine the participant's Total Mood Disturbance (TMD) score prior to any mood manipulation or other procedures occurred. The

results were analyzed using a 2x3 factorial MANOVA. The POMS yielded a significant TMD difference for sex, $F(1, 54) = 4.88, p < .05, \eta^2 = .08$. Males had significantly lower scores ($M = 13.59, SD = 17.84$) overall when compared to females ($M = 35.74, SD = 36.04$). The TMD score is determined by the six subscales of the questionnaire: Tension/Anxiety, Depression/Dejection, Anger/Hostility, Fatigue/Inertia, Confusion/Bewilderment, and Vigour/Activity (the only positive subscale). Table 2 displays the results of the POMS indicating that males had lower scores in all negative subscales and higher scores in the one positive subscale when compared to females. However, there were only significant sex differences for three of the six subscales (Tension/Anxiety: $F(1, 54) = 5.85, p < .05, \eta^2 = .10$; Vigour/Activity: $F(1, 54) = 7.25, p < .05, \eta^2 = .12$; Fatigue/Inertia: $F(1, 54) = 6.77, p < .05, \eta^2 = .11$). Though males had lower scores in the other three subscales, the differences were not significant (Depression/Dejection: $F(1, 54) = 2.36, p > .05, \eta^2 = .04$; Anger/Hostility: $F(1, 54) = .65, p > .05, \eta^2 = .01$; Confusion/Bewilderment: $F(1, 54) = 1.07, p > .05, \eta^2 = .02$). As stated earlier, these results did however cumulate into a significant difference between sexes for TMD.

Table 2.
Mean, Standard Deviation, and Range of Subscales of POMS by Sex.

POMS Subscale	Females		Males		Range
	M	SD	M	SD	
Tension/Anxiety	10.81	8.48	5.12	5.06	0 – 36
Depression/Dejection	12.44	12.22	7.12	6.49	0 – 60
Anger/Hostility	9.53	8.13	7.94	5.43	0 – 48
Fatigue/Inertia	11.58	5.74	7.29	4.22	0 – 28
Confusion/Bewilderment	5.30	4.65	3.94	3.56	0 – 28
Vigour/Activity	13.95	4.84	18.41	5.17	0 – 32
TMD	13.59	17.84	35.74	36.04	-32 – 200

Note. N= 60. M= Mean. SD = Standard deviation. TMD = Total mood disturbance score. Range = the minimum and maximum possible score possible for each subscale and TMD score.

Affective State Manipulation Check

The affective state of participants was manipulated with either a positive or negative film clip. Self-report measures consisting of three nine-point bipolar likert scales regarding the participant's current affective state were taken after the manipulation to verify whether a manipulation did in fact occur. A MANOVA with mood manipulation as the between subjects variable was conducted to determine the significance of the mood manipulation. This analysis yielded a significant effect for the three nine-point bipolar mood manipulation scales (Good/Bad: $F(2, 54) = 52.6, p < .001, \eta^2 = .66$; Happy/Sad: $F(2, 54) = 71.83, p < .001, \eta^2 = .73$; Positive/Negative: $F(2, 54) = 65.13, p < .001, \eta^2 = .71$). As expected, results from the scales revealed that those exposed to the positive "The Jungle Book" clip yielded significantly more positive scores (Good/Bad: $M = 2.00, SD = 1.03$; Happy/Sad: $M = 1.85, SD = .88$; Positive/Negative: $M = 1.90, SD = 1.21$) than those exposed to the negative "Sophie's Choice" clip (Good/Bad: $M = 7.15, SD = 1.73$; Happy/Sad: $M = 7.70, SD = 1.49$; Positive/Negative: $M = 7.45, SD = 1.54$). However, the positive exposure group and the control group yielded nearly identical scores for the three scales of mood manipulation (Good/Bad: $M = 2.55, SD = 1.64$; Happy/Sad: $M = 2.65, SD = 1.76$; Positive/Negative: $M = 2.50, SD = 1.82$). This will be discussed in detail in the discussion section.

Multivariate Tests

A multivariate Pillai's Trace was conducted to determine whether there was a general significant difference between groups and sex using a 2x3 MANOVA using the two levels of sex and the three levels of the DAL scores (pleasantness, activation, and imagery). The following dependent variables were used: pleasantness score, activation score, imagery score, mood manipulation score (good/bad, happy/sad, positive/negative), event emotionality, event

negativity, event detail, and word count. After conducting the analyses, it was found that there was a significant difference between groups, $F(20, 92) = 3.79, p < .001, \eta^2 = .45$. However, there was no overall significance found between sex, $F(10, 45) = 1.76, p > .05, \eta^2 = .28$.

Hypotheses

Hypothesis one.

It was hypothesized that participants in the positive exposure group would have higher levels of pleasantness in the language in their passage while those in the negative exposure group would have lower levels of pleasantness when compared to the control group. This hypothesis was tested using a MANOVA. Although pleasantness is found to be slightly higher for the positive exposure participants when compared to the negative exposure participants, the results were found to be insignificant. There was no significant difference for pleasantness scores between groups, $F(2, 54) = .71, p > .05, \eta^2 = .03$. The results from this MANOVA for pleasantness as well as the results for the next two hypotheses are presented in Table 3.

Table 3.
Group Differences for Pleasantness, Activation and Imagery Scores.

	Positive Exposure		Negative Exposure		Control	
	M	SD	M	SD	M	SD
Pleasantness	1.93	.02	1.91	.02	1.93	.01
Activation	1.71	.01	1.70	.01	1.71	.01
Imagery	1.54	.02	1.54	.02	1.55	.02

Note. N= 60. M= mean. SD= standard deviation.

Hypothesis two.

It was also hypothesized that participants in the positive exposure group would have higher levels of activation in their passages while those in the negative group would have lower levels of activation when compared to the control group. This hypothesis was tested using a MANOVA. Results were insignificant, $F(2, 54) = .89, p > .05, \eta^2 = .03$. There was a slight

increase in activation scores for the positive exposure group and the control group when compared to the negative exposure group suggesting a potential influence; however, these results are too minute to yield significance. The results from the analyses are also presented in Table 3.

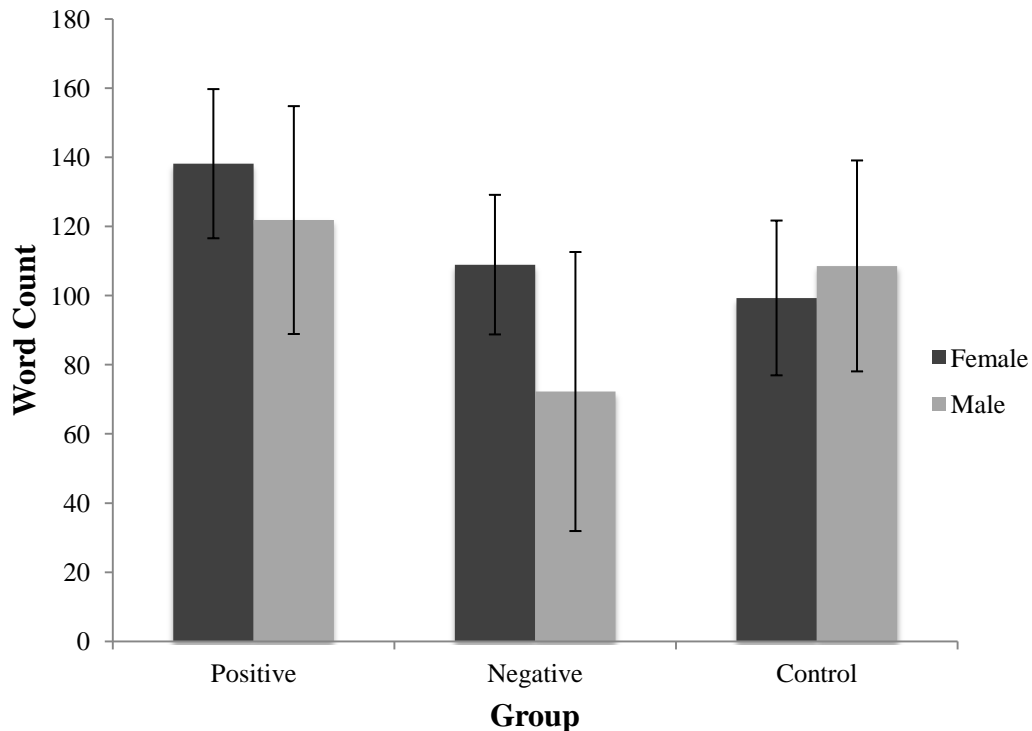
Hypothesis three.

The next hypothesis in the current study was that participants in the positive exposure group would have lower levels of imagery while those in the negative exposure group would have higher levels of imagery when compared to the control group. After being tested with a MANOVA, no significant differences were revealed, $F(2, 54) = .13, p > .05, \eta^2 = .01$. The positive and negative exposure groups produced the same score for imagery while the control was slightly higher; again, this difference was too slight to be considered significant. Results of imagery scores for all groups are reported alongside those of pleasantness and activation in Table 3 as well.

Hypothesis four.

It was additionally hypothesized that the positive exposure group would write shorter passages while those in the negative exposure group would write longer passages when compared to the control group. However, after running a 2x3 MANOVA, there were no significant differences to be found, $F(2, 54) = .94, p > .05, \eta^2 = .03$. It was similarly hypothesized that males would write shorter passages than females. Though females did write longer passages when analyzing the mean, the sex differences were not enough to be significant, $F(1, 54) = .38, p > .05, \eta^2 = .01$. The results from both the sex and group differences for passage length are displayed in Figure 1.

Figure 1.
Mean and Standard Error Bars by Sex and Group.



Hypothesis five.

Hypotheses were made regarding sex differences in the scores regarding the dimensions of language. It was hypothesized that males would have higher levels of activation when compared to females. Through testing with a MANOVA, it was revealed that there were no significant differences, $F(1, 54) = .00$, $p > .05$, $\eta^2 = .00$. Males and females had nearly identical means of activation scores of 1.71 and standard deviations of .04. It was hypothesized further that females would have higher levels of pleasantness when compared to males. This was also found to be insignificant with the use of a MANOVA, $F(1, 54) = 1.95$, $p > .05$, $\eta^2 = .04$. Females had a mean pleasantness score of 1.93 with a standard deviation of .05 while males had a mean of 1.91 and a standard deviation of .08. While females did have higher levels of pleasantness, it was not enough to produce significance.

Hypothesis six.

It was finally hypothesized that the mood manipulation would not have as significant of an effect on males in the negative exposure group as it would for the females in the negative exposure group. This was analyzed with a MANOVA that looked at the differences between the post-mood manipulation self-report questionnaire and sex. However, there was no significance found for any of the three self-report scales and sex (Good/Bad: $F(1, 54) = .50, p > .05, \eta^2 = .01$; Happy/Sad: $F(1, 54) = .32, p > .05, \eta^2 = .01$; Positive/Negative: $F(1, 54) = .02, p > .05, \eta^2 = .00$). The results used to reject this hypothesis are displayed in Table 4.

Table 4.

Mean and Standard Deviation for Sex Differences in Mood Manipulation Check Questionnaire.

	Good/Bad		Happy/Sad		Positive/Negative	
	M	SD	M	SD	M	SD
Female	7.13	1.89	7.70	1.66	7.25	1.61
Male	7.25	.96	7.75	.50	8.25	.96

Note. N= 60. M= mean. SD= standard deviation.

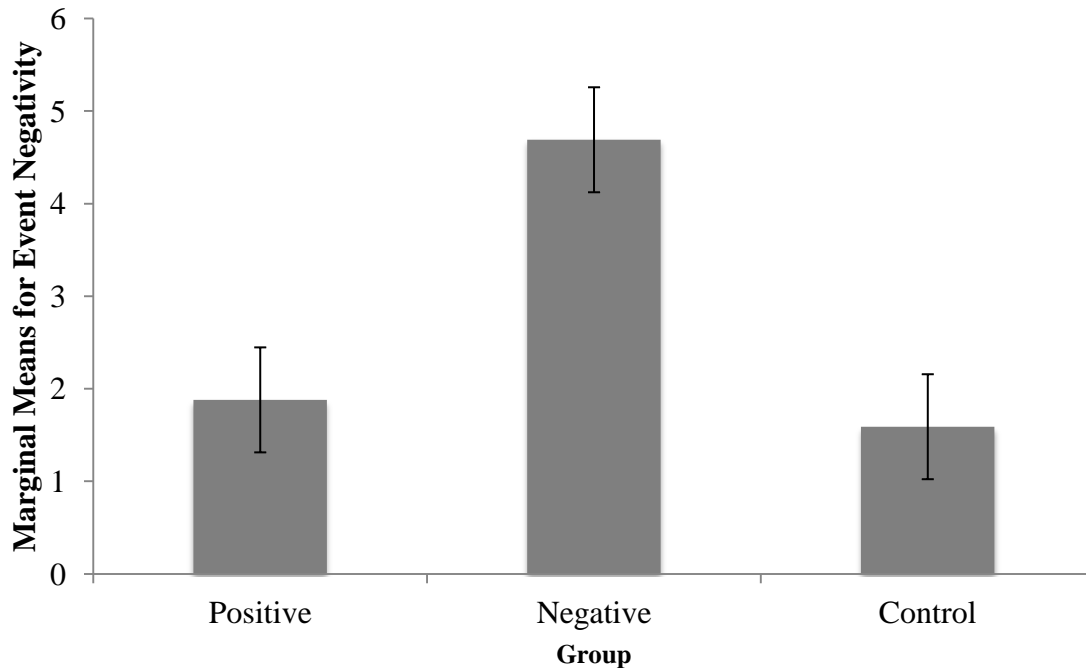
Significant Group Differences

After writing the description of a personal event, participants filled out a questionnaire describing the type of event they wrote about. They were asked “How negative was this event for you?”, “To what extent was this an emotional situation?”, “How well do you remember the specific details of this situation?”. Participants answered the questions on a seven-point likert scale ranging from very positive to very negative, not at all to very much, and not at all to very much, respectively. By analyzing results using a 2x3 factorial MANOVA, a significant difference was found between the level of negativity of the event described and group, $F(2, 54) = 7.68, p < .01, \eta^2 = .22$. As shown in Figure 2, the negative exposure group wrote about events that are significantly more negative than the positive exposure group and the control group. This

was not hypothesized due to the findings in Beukeboom and Semin (2006), which will be discussed in detail in the discussion section.

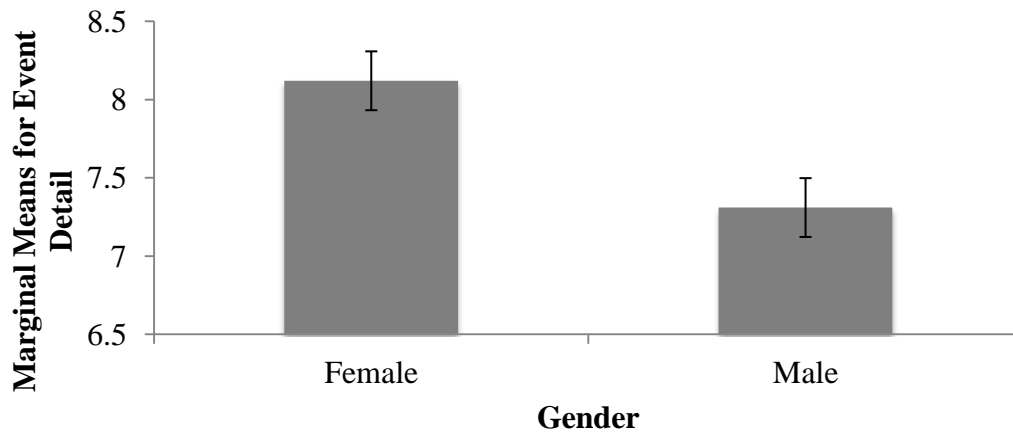
Figure 2.

Marginal Means for Event Negativity by Group with Error Bars.

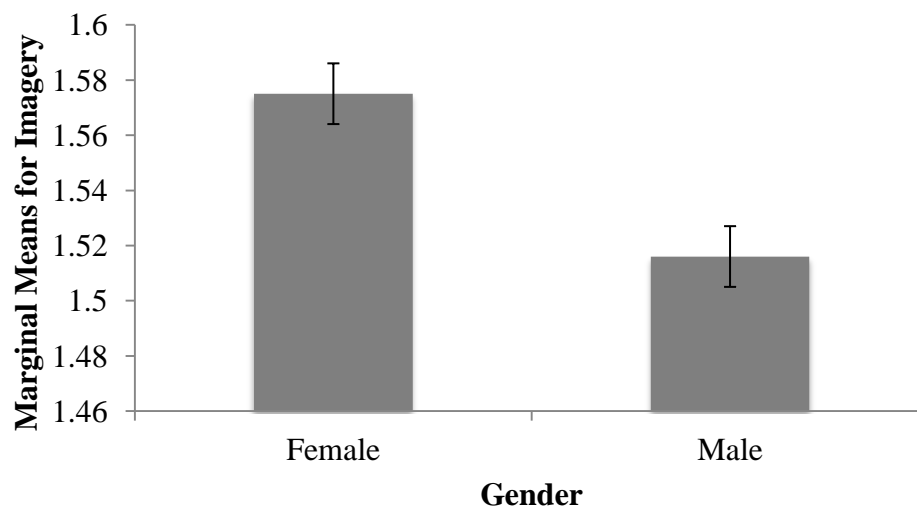


Significant Sex Differences

The event retrieval questionnaire that was completed following the written passage was intended to determine if there were differences in the type of event that was retrieved by the participants based on their emotional state. One of the questions asked how vividly the participant remembered the specific details of the event they were describing in the passage. The results from the event retrieval questionnaire were analyzed using a MANOVA. A significant difference was found between sex and how vividly they remembered the specific details of the event, $F(1, 54) = 5.08$, $p < .05$, $\eta^2 = .09$. The results are displayed in Figure 3. Females were found to remember significantly more detail about the event they discussed when compared to males (Females: $M = 8.12$, $SD = 1.03$; Males: $M = 7.35$, $SD = 1.69$).

*Figure 3.**Marginal Means for Event Detail by Sex with Standard Error Bars.*

Passages were analyzed by the DAL to calculate pleasantness, activation, and imagery scores. A MANOVA was conducted to determine the differences between sexes for these scores. There was found to be a significant difference between sexes for imagery scores. Females were found to have significantly higher levels of imagery in the language in their passages when compared to males, $F(1, 54) = 7.70$, $p < .01$, $\eta^2 = .13$. Results from this analysis are displayed in Figure 4. Females had a mean imagery score of 1.57 with a standard deviation of .08, while males had a mean imagery score of 1.51 with a standard deviation of .06.

*Figure 4.**Marginal Means for Imagery Scores by Sex.*

DAL Scores

It is interesting to note the general mean of the scores for the dimensions of the DAL: pleasantness, activation and imagery. The DAL creates an average score for the dimensions found in natural language. Natural language, according to the DAL, has a mean pleasantness score of 1.85 (SD= .37), an average activation score of 1.67 (SD= .36), and an average imagery score of 1.53 (SD= .61). However, the mean dimension scores of the language from the passages in the current study are much higher than the scores for natural language. The mean pleasantness for the passages in the experiment was 1.92 (SD= .38), the mean activation score was 1.70 (SD= .34), and the mean imagery score was 1.55 (SD= .63). This discrepancy between natural language and the language of the passages in the experiment was not anticipated.

Correlations

Pearson correlations were calculated for the dependent variables listed earlier. Word count was found to be positively correlated with TMD ($p = .03$) and event negativity ($p = .29$). Event negativity was also negatively correlated with pleasantness scores ($p = .003$) and positively correlated with post-mood manipulation positivity/negativity ($p = .00$). Finally, activation scores are negatively correlated with event detail ($p = .03$) and positively correlated with pleasantness scores ($p = .00$). Correlation results are displayed in Table 5 below.

*Table 5.**Correlation of POMS Score, Self-Report Measure, and Post-Task Variables*

	TMD	P/N	EN	EE	ED	Pleas	Act	Img	WC
TMD	1	.08	.12	.08	.04	-.08	.003	.19	.29*
P/N	.08	1	.49**	.08	-.08	-.19	-.06	.09	-.12
EN	.12	.49**	1	.09	.01	-.38**	-.14	-.20	.29*
EE	.08	.08	.09	1	.23	-.04	-.20	-.02	.19
ED	.04	-.08	.01	.23	1	-.11	-.29*	.05	.21
Pleas	-.08	-.19	-.38**	-.04	-.11	1	.46**	.07	-.23
Act	.003	-.06	-.14	-.20	-.29*	.46**	1	.11	-.24
Img	.19	.09	-.20	-.02	.05	.07	.11	1	-.14
WC	.29*	-.12	.29*	.19	.21	-.23	-.24	-.15	1

Note: N = 60. TMD = Total Mood Disturbance. P/N = Self report measure of Positive/Negative. EN = How negatively did the participant perceive the event described. EE = How emotional did the participant perceive the event that was described. ED = How well did the participant remember the event they described. Pleas = Pleasantness. Act = Activation. Img = Imagery. WC = Word count.

** - $p < 0.05$; * - $p < 0.01$

Discussion

The objective of the current study was to examine the impact that emotion may have on an individual's language. More specifically, it was attempting to determine whether a current affective state would impact the three dimensions of language (pleasantness, activation, and imagery) in a personal event description passage when analyzed by the DAL. Past research suggests an individual's current affective state influences processing style, which in turn affects language style. Abstract language has been found to accompany a positive affective state, while concrete language has been found to accompany a negative affective state (Schwarz & Clore, 1983; Semin & Fiedler, 1988; Bless et al., 1990; Bless, 2000; Beukeboom & Semin, 2006). The DAL has been used to quantify emotionality of language in past research. It was used in the current study to determine whether these dimensions are present in the language of participants if their affective state was manipulated into either a positive or negative mood. The current study

also attempted to examine other differences that may be present such as passage length and sex differences due to the impact of emotion.

The results from the current study failed to demonstrate that levels of pleasantness, activation, and imagery in language are impacted by the individual's current affective state. There were no group differences for any of the three dimensions of language. The other hypotheses were not supported as well. There were no group or sex differences for word count. Nor were there sex differences in the dimensions of language where it had been hypothesized (males didn't have significantly higher activation scores and females didn't have significantly higher pleasantness scores). The final hypothesis that females would be more affected by the negative mood manipulation when compared to males was also not supported.

Though there were no significant group differences in the language of participants where it was expected, the results do indicate that group and sex differences are evident in some other areas of language. The results indicated there were significant group differences for the mood manipulation check questionnaire as presented in the results. The negative exposure group felt significantly more negative after the exposure than the positive and control group. Though this outcome was expected, the similarity between the positive and control group was unexpected. As discussed in the results, the positive exposure group and the control group reported nearly identical positivity ratings in the mood manipulation check questionnaire. This indicates that the negative group was affected in some way by the mood manipulation. However, it also indicates that the positive exposure group was not significantly impacted by the positive exposure manipulation. This may reveal that the positive exposure manipulation did not have the desired and expected result on participants in the positive exposure group. This may be a result of a limitation of the current study. This will be discussed further later on.

As discussed in the results, the negative exposure group did seem to be affected by the negative manipulation. The negative exposure group described events that were significantly more negative than the positive exposure group or the control group. Though this result may seem logical and expected, it was the opposite result of what was expected due to the findings of past research. In the Beukeboom and Semin (2006) study, participants in the negative exposure group were no more likely to write a negative event than the participants in the positive exposure group or the control group despite the manipulation. Since the method was mimicked nearly identically from the Beukeboom and Semin (2006) study, this difference was not expected. This result in the current study reveals that the manipulation did have an effect on the negative exposure group. They were aware of the negativity of the film clip and it did impact their perception in some way. However, this manipulation did not manifest itself in the language in the way it was hypothesized. The mood manipulation may not have affected the language for a number of reasons. These limitations will be discussed in detail later on.

Sex differences were also found to be present in the results of the current study. As discussed in the results, females remembered the events they described with more detail and they also had higher imagery scores in their language. High imagery and detail are closely related and are indicative of concrete language. It is easy to create a mental picture for words that are concrete. This is also the case for words with high imagery scores. Additionally, concrete language is detail-oriented and more elaborative. However, this result was not expected for females. After this outcome was discovered, literature was researched to investigate this relationship. In a study by Kitchenham (1997), females were found to describe a poem with more detail and more vivid language than males. They were also found to be more aware of the imagery in the poem than males. Both of these findings are indicative of concrete language.

However, it was also found that the females were more apt to use background knowledge and discuss concepts that are abstractly related to the poem. This is indicative of abstract language (Bless et al., 1990). While these findings are consistent with prior literature regarding concrete and abstract language, these findings reveal conflicting results for whether females are inherently more concrete or abstract in their language. The past literature discussed earlier regarding male and female language differences was also contradictory and led to inconclusive results as to whether females and males are inherently concrete or abstract in their language. Therefore, future research is necessary in order to examine the relationship between females and concrete or abstract language based on the imagery and detail results found in the current study.

The Pearson's correlations also revealed interesting results. Word count was positively correlated with both TMD and event negativity. The TMD score was determined from the POMS prior to any mood manipulation occurred. The correlation revealed that participants who began the experiment in a more disturbed mood wrote longer passages than those in a less disturbed mood. The correlation also revealed that the participants who described more negative events wrote longer passages. Both of these findings are consistent with past research that states that a negative mood results in elaboration and analytical, detail-oriented language (Bless et al., 1990; Beukeboom & Semin, 2006). Though there were no group differences found in the word count as a result of the manipulation, the results support prior findings that longer word count is indicative of negativity and a negative mood. This is another example of when the negativity of the manipulation or the negativity of the participant manifested itself in the results in a different way than was initially hypothesized (not through the scores of the three dimensions of language).

The overall high average of the DAL scores was another unexpected and interesting finding that added to the current study. Participants from all groups, despite the negative mood

manipulation, wrote passages with pleasantness, activation, and imagery scores that were much higher than the average of natural language. These results reveal that even those in the negative exposure group still wrote very pleasantly and actively. This may indicate that the mood manipulation didn't have the desired effect that was expected for the study. Furthermore, it also may indicate that the mood of the writer simply does not affect their scores from the DAL (pleasantness, activation, and imagery) in the way that was hypothesized. Another factor that may have resulted in the high DAL scores is the fact that participants were reminiscing about events while they were writing. Past research has concluded that reminiscing about positive past events improves one's affective state (Fallot, 1979-1980; Strack, Schwarz & Gschneidinger, 1985; Bachar, Kindler, Scheffler, & Lerer, 1991). Reminiscing is even used as a group therapy method for individuals suffering from depression (Bachar et al., 1991). Since the majority of participants described positive events in the current study, their affective states may have been positively impacted after the intended mood manipulation procedure had taken place. This could potentially result in an improved mood for all participants regardless of exposure group, resulting in higher DAL scores for all groups and all dimensions.

There are a number of limitations to the current study that may have contributed to the lack of support for the hypotheses. As mentioned earlier, the overall high DAL scores may indicate that the mood manipulation was not effective. The similarity between the positive and control group as discussed earlier also indicates that the positive exposure group was not manipulated by the film clip as expected. Another limitation that may have contributed to the lack of significance is social desirability. The participants were aware that the researcher would be reading their passages and may have censored their passages accordingly. Similarly, the participants knew about the nature of the study. In the consent form, participants were informed

that they were participating in a study related to the impact of emotion on language. With this knowledge in mind, participants may have responded to the mood manipulation check questionnaire in the way that was expected of them after watching the manipulation film clip. Therefore, the mood manipulation check questionnaire may not display an accurate representation of the participant's true affective state. Finally, a larger sample size and a sample with equal sex distribution would have been beneficial for this study. With the power of more males, the results may have revealed more significant findings.

The current study has opened the door to other avenues of future research. As discussed earlier, it would be prudent to research the relationship between females and concrete language. There is evidence from the current study that indicates females may be more prone to concrete language. However, more research is necessary in order to investigate this possibility further and to make conclusions. There are a number of changes that could be made to the current study in order to be more effective in future research. Limiting the participant-researcher interaction may have resulted in a different outcome. The researcher was very involved in the procedure by handing the participants the next page for each stage. Some participants spoke to the researcher between stages, which may have counteracted their mood manipulation. Conducting the experiment on a computer to limit the interaction with the participant may yield different results in the future. Secondly, the mood manipulation film clips used in the current study were seven minutes long. Since the mood manipulation did not yield the expected result, a longer film clip may be necessary to impose the desired mood in the participant for a duration that is long enough to be displayed in their language. Similarly, since there wasn't a difference between the positive and control group, a different positive exposure film clip may be used. Perhaps the positive film clip from "The Jungle Book" wasn't positive enough in order to elicit the desired response in

participants. The scene that was used from “The Jungle Book” was a musical scene. The film is also a cartoon. One may consider whether these elements may have accounted for the results since a cartoon is naturally more abstract than a live-action film and music is processed differently than speech. These are both areas of research that may require attention if this study is to be duplicated in the future. Furthermore, it also may be advisable to expose the control group to a neutral video. In order to maintain consistency with the method from the Beukeboom and Semin (2006) study, a neutral video was not used in the current study. A neutral video was not included to ensure that the control group avoided any stimulation that may induce an emotional reaction. A clip that one individual may consider neutral may not be neutral to another individual. However, testing multiple neutral videos prior to the experiment and determining what video elicits the least emotional reaction would be beneficial for future studies. If a truly neutral stimulus was used for the control group and a more positive stimulus was used for the positive exposure group, then differences may have been evident between the groups.

Despite the lack of significance within the results, the current study contributed to psychological research and experimentation. Since there has been little research in the area, the current study attempted to extend the knowledge about the emotional and cognitive interface on a linguistic level. The current study was interested in whether an individual’s emotional state will determine the emotional flavour of the words they choose as determined by the DAL. This has yet to be done using the DAL before this study. As mentioned earlier, this area of research is so important because language acts as a channel between cognition and social interaction. Since communication is a pivotal element of all aspects of society, it is essential to understand its implications in everyday life. Research of this nature also has practical applications. The current research could potentially aid in a clinician’s process of therapy. It would be beneficial for a

clinician to understand how their client's language may be impacted based on the client's current affective state – whether the client will be speaking with more elaboration if they are in a negative mood, or speaking more pleasantly if they are in a positive mood. This information may help to design therapy programs that cater to the needs of individuals based on their current affective state.

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Appendix A: Recruitment Script

I am doing research on the impact of emotion on language. My name is Melissa Spence and I am a 4th year undergraduate student in Psychology at Laurentian. My thesis supervisor is Dr. Cynthia Whissell. The purpose of the study is to understand how the current emotional state of an individual may impact their choice of language when describing an event from their life. We would like to know if you would be interested in participating in this study.

You would be asked to attend one individual session lasting roughly half an hour in length. You would be invited to fill out a few questionnaires that pertain to your emotional state. You may be asked to watch a 7-minute that is either happy or sad; after which you will write a paragraph regarding a personal event in your life. All results from the questionnaires and the written passage will be kept in a safe place that is accessible only by the researchers. These will be destroyed at the end of the study. No personal information will be disclosed.

Your participation in this study is strictly voluntary and you will be able to withdraw at any time, without penalty. Anonymity and confidentiality are assured.

If you agree to participate, please write your name, email, and first language on the appropriate sheet and we will be in touch with you. If you participate you will be able to receive a summary of the results of the study in April of 2015.

Appendix B: Consent Form

Melissa Spence
Supervisor: Dr. Cynthia Whissell
Laurentian University

I, _____, am interested in participating in this study on autobiography conducted by Melissa Spence, a fourth year student and supervised by Dr. Cynthia Whissell, Professor at the Psychology Department, Laurentian University. The purpose of the study is to better understand the impact of emotion on language.

If I agree to participate, my participation will consist of one individual session. I may or may not be asked to watch a 7-minute video that is either happy or sad. I will be asked to write a passage regarding a personal event in my life. **I will also be asked to complete a few questionnaires, which pertain to my current emotional state. This session will last about 30 minutes. All results from the questionnaires and the passage will be kept locked up in the researcher's lab and only the researchers will have access to them. All results will be destroyed at the end of the study.** No personal information will be disclosed.

I understand that since this activity deals with emotional manipulation, it may induce **emotional reactions** which may, at times, be negative. **I have received assurance from the researchers that every effort will be made to minimize these occurrences.**

My participation is **strictly voluntary and I am free to withdraw from the study at any moment or refuse to participate without any penalty.** Although it would be preferable that I answer all of the questions, if I am uncomfortable with any particular question, **I may refuse to answer.**

I have also received assurance from the researchers that the information I will share will remain strictly confidential. I, in turn, assure all members of the group that I will treat in the same confidential way all the information they will share during the group meetings. **There are two copies of this consent form, one which the researchers keep and one which I keep.**

If I have any questions/concerns, contact Dr. Cynthia Whissell at

Participant's Signature: _____ Date: _____

Researcher's Signature: _____ Date: _____

I wish to receive a summary of the results of this study, which will be available in April 2015, at the following email address: _____

THANK YOU FOR YOUR PARTICIPATION.

Appendix C: Profile of Mood States (POMS) Questionnaire

Below is a list of words that describe feelings people have. Please read each one carefully. Then fill in ONE circle under the answer to the right which best describes HOW YOU HAVE BEEN FEELING DURING THE PAST WEEK INCLUDING TODAY.

The numbers refer to these phrases:

0 = Not at all

1 = A little

2 = Moderately

3 = Quite a bit

4 = Extremely

- | | |
|---------------------------|----------------------------|
| 1. Friendly | 34. Nervous |
| 2. Tense | 35. Lonely |
| 3. Angry | 36. Miserable |
| 4. Worn out | 37. Muddled |
| 5. Unhappy | 38. Cheerful |
| 6. Clear-headed | 39. Bitter |
| 7. Lively | 40. Exhausted |
| 8. Confused | 41. Anxious |
| 9. Sorry for things done | 42. Ready to fight |
| 10. Shaky | 43. Good natured |
| 11. Listless | 44. Gloomy |
| 12. Peeved | 45. Desperate |
| 13. Considerate | 46. Sluggish |
| 14. Sad | 47. Rebellious |
| 15. Active | 48. Helpless |
| 16. On edge | 49. Weary |
| 17. Grouchy | 50. Bewildered |
| 18. Blue | 51. Alert |
| 19. Energetic | 52. Deceived |
| 20. Panicky | 53. Furious |
| 21. Hopeless | 54. Efficient |
| 22. Relaxed | 55. Trusting |
| 23. Unworthy | 56. Full of pep |
| 24. Spiteful | 57. Bad-tempered |
| 25. Sympathetic | 58. Worthless |
| 26. Uneasy | 59. Forgetful |
| 27. Restless | 60. Carefree |
| 28. Unable to concentrate | 61. Terrified |
| 29. Fatigued | 62. Guilty |
| 30. Helpful | 63. Vigorous |
| 31. Annoyed | 64. Uncertain about things |
| 32. Discouraged | 65. Bushed |
| 33. Resentful | |

Appendix D: Mood Manipulation Check Questionnaire and Task

How do you feel at this moment?

	1	2	3	4	5	6	7	8	9	
1) Good	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bad
2) Happy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sad
3) Positive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Negative

TASK:

Now, on the lined paper provided, write a passage addressing the following:

Please describe an event you have experienced, that was important to you and in which you and one or more people were involved.

You are not limited for time or word length. Please print legibly.

1) How positive or negative was this event for you?

2) To what extent was this situation an emotional situation?

3) **How well do you remember the specific details of the situation?**

[illegible]

Appendix F: Debriefing Form

Dear Participant,

Thank you for participating in this research project. My research under the supervision of Dr. Cynthia Whissell looks at the impact of an affective state on language use. Research such as this helps us understand the cognitive implications of emotion on language and social interaction.

In this study, you may have watched a ~7 minute movie clip that was either happy (*The Jungle Book*) or sad (*Sophie's Choice*). If you did not watch the video, you continued on with the procedure without a movie clip or pause to prevent any mood manipulation that may have occurred at this time. You were asked to write a passage about an event in your life. You also filled out questionnaires regarding your current emotional state, as well as a questionnaire regarding the type of event you retrieved from memory. These measures were taken in order to understand the impact the clip may have had on you. The passage was used to record any language differences that may occur based on your emotional state.

Through this research, we expect to find that participants who watched the happy clip will provide shorter passages with more abstract language (involving more adjectives). We also expect to see that participants who watched the negative clip will have longer passages with more concrete language (involving more verbs). Due to the findings of past research, we also predicted that males will use more 'active' language and females will use more 'pleasant' language. These dimensions come from Whissell's (2009) Dictionary of Affect in Language, a program that will be used to analyze your passage.

Any information and entries you provided for us will remain anonymous and confidential, and the data we discuss will involve group averages. Please do not discuss the information on this page with others until April 2015, as several of your fellow-students may also be participants in the research.

If you want to talk to someone further about issues that may have arisen as a result of the negative film clip, you can contact Dr. Cynthia Whissell at

If you are interested in reading more about the background of this experiment, you could try the following sources:

How Mood Turns on Language (2006), Camiel Beukeboom and Gun Semin.

Using the Revised Dictionary of Affect in Language to Quantify the Emotional Undertones of Samples of Natural Language (2009), Cynthia Whissell.

Thank you very much for your participation. Please feel free to contact me with any questions or concerns

Melissa Spence